

4th ISUFitaly International Conference | Bari, 26-28 september 2018

READING BUILT SPACES

Cities in the making and future urban form

edited by
Paolo Carlotti
Loredana Ficarelli
Matteo leva



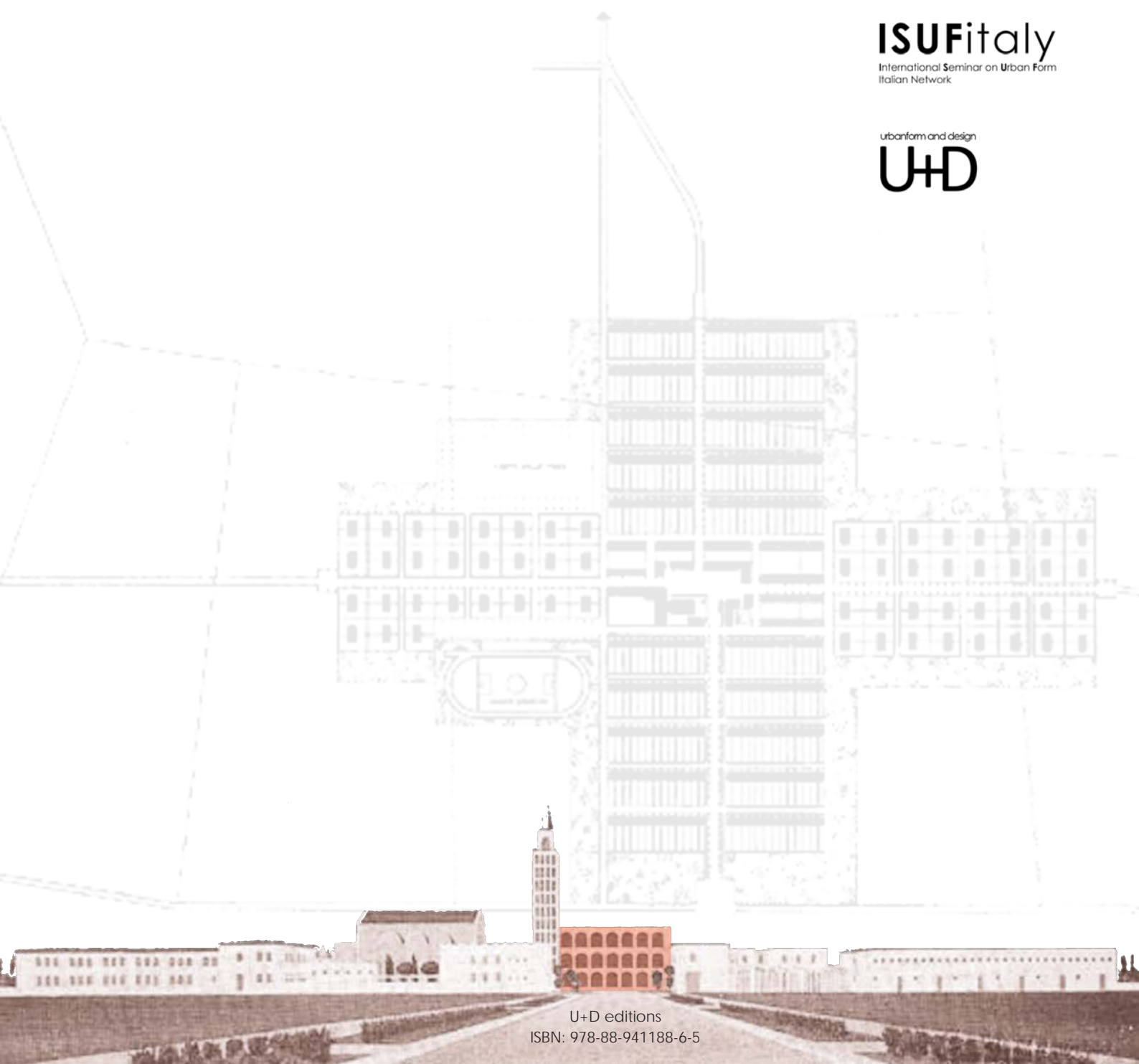
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Presentation

The city is an “organism in the making”, an entity in constant transformation, not a complex of immutable elements. The city represents the entire human experiential field of the world, considered as expression of a “fundamental movement of existence” in its completeness and historicity, expressed by the formative structure of tissues and building types, by the urban hierarchies, by the relations with the territory, by the social relations, and by the values and criticalities.

The conference's aim is to propose a dialectical comparison between scholars of Architecture, Urban Planning, Urban History, Restoration, Geography, on the theme of urban morphology with an interpretative perspective based on the concept of “operating history”. Search for a multidisciplinary syncretism that eludes single analyzing techniques and aims to the complete reconstruction of the urban phenomenology in its totality and concrete essence, through the study of the changing and inflexible condition of ‘fluidity’ hinged on the world's events. An integrated thought based on the critical concept of ‘making’ that constitutes, phase by phase, the signifying element of each present, explained through the relationship between the before and the after: that is the research perspective of ‘being’ that announces the notion of transformational process.

Therefore, the projection in the future of the urban form is the central theme of the conference that proposes to stimulate the reflection on the issues as: recovery (not only of the historical city), re-use of existing urban spaces, regeneration, ex novo design in peripheral and peri-urban areas and natural spaces. All that, without neglecting the issue of sustainability, not considered with the strabismus of those who surrender to the “technique” pre-domain.

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Urban sprawl of informal settlements in Belgrade, Serbia. Models for standardization and reflections on recovery

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One of the main challenges for sustainable urban development of Belgrade with its 1.7 million citizens is prolific informal development and uncontrolled urban sprawl. These phenomena were initiated mainly because of rural to urban migrations, however they continued more intensively in the 1990s, not only because of regular migration, but as after effect of forced exile of people from Kosovo and Metohija and refugee crisis in ex-Yugoslavia wars.

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The informal settlements occupy rural land in the outskirts of Belgrade, mostly by main in and out transit corridors. The characteristics of these neighbourhoods is unexpectedly high standard in residential buildings, even luxury, in contrast with unfavourable environmental conditions, the lack of urban standards and highly increased coefficients, absence of technical infrastructure or at least existence of the inadequate one, shortage of basic social and public utilities and public spaces.

Underlying conditions why so many people live in informal settlements are the high cost of "formal" housing (issues of affordability), as well as there may be discussed to less degree some aspects of residential preference. The empirical research is carried out on the examples of several urban plans for standardization, regulation and legalization of these settlements in Belgrade, which established a model for resolving the situation, with a goal to obtain better living conditions and limit the informal growth by employing urban planning tools.

Introduction

Within the Serbian urban system, Belgrade has always held a distinctive position. When saying Belgrade, it is actually referred to the Belgrade Metropolitan Area that encompasses a territory of 3,226 km², or 3.6% of the territory of the Republic of Serbia. It is organized in 17 municipalities, as a complex and heterogeneous system of settlements. Belgrade's population (according to Census 2011) is 1.7 million, or 23% of the population of the Republic of Serbia. It is a well-known fact that mass industrialization in the period following the World War II triggered intensive development of the city of Belgrade and changes in its spatial-functional structure. Consequent urbanization process hastened in the post-war period of recovery (Slaev et al., 2018) and this urbanization was of a primary (elemental) rather than of the planned type hence influencing "the changes in composition of activities of the surrounding settlements, and their adhesion/ annexation to Belgrade" (Todorčić, 2013:60). Among general underlying reasons of urban sprawl and those applicable to the context of Belgrade, one can distinguish: population growth; development of transportation and road networks; and housing preferences. However, the more specific reason of urban sprawl in Belgrade and in Serbia during the socialist period was inability of the state to efficiently cope with satisfying housing needs of the large numbers of new urbanities. Namely, the population influx created great pressure on Belgrade's housing stock, which was during the period of socialism (from 1945 until 1990) partly treated through state companies and institutions that were entitled to develop flats for their employees. While certain categories of immigrants, in particular those who were accommodated in state-owned housing, had been effectively integrated into the life of the city, other categories had been forced to build their own homes, often illegally, in certain parts of the city periphery. The state policy thus resulted in the development of two peripheries of Belgrade – one which was relatively well-serviced and organized, and the other one which was autonomous, with a composition of privately-owned houses but largely devoid of infrastructure and other facilities (Maričić, Petrić, 2008). In response to this, the number of illegally built houses rose spontaneously during the 1970s and 1980s (Grubović, 2006). Until the late 1980s, more than 98% of illegal builders in Belgrade were immigrants from rural areas and between 70 to 90% of them belonged to the working class (Saveljić, 1988). During the 1990s, the process of illegal construction further enhanced. As a consequence of civil wars at the territories of former Yugoslavia, another considerable wave of immigrant population came to Belgrade and Serbia, which included people that were internally displaced from Kosovo and Metohija. The statistics of the period succeeding these immigrations shows that, on average, every sixth citizen of Belgrade was immigrant and every fourteenth came as a refugee (Maričić, Petrić, 2008). Generally, a larger proportion of immigrants, especially refugees came to suburban municipalities of Belgrade. The housing deficit in Belgrade, confronted with the need for accommodating the new populations, has caused significant residential pressure on the suburbs and agricultural land at the outskirts of Belgrade, especially alongside main in and out transit corridors (e.g. the Zemun corridor, the belt of motorways to Surčin, Batajnica, Novi Sad, Avala, Zrenjanin, Ibar road, etc.).

The focus of this paper is on the empirical study how urban plans in Belgrade have tackled the issue of regulation and legalization of informal settlements. With this in view, and particularly through analysis of housing affordability and residential preferences, a proposal is made towards standardization model for informal settlements having in view the given contextual aim.

Informal settlements, affordability of housing and residential preferences

Illegal (irregular, informal, "wild") construction/development is related to the construction of new houses, development of annex to the buildings, the adaptation or reconstruction of housing or some other (business, auxiliary, etc.) object but without previously acquired building permit. Informality in housing and land occupation is multidimensional phenomenon that involves noncompliance with urban norms and regulations, often accompanied with inadequate provision of public services and equipment (Smolka, Biderman, 2012). According to some authors, the term "illegal" is the most appropriate to describe development of

objects or buildings without building permit, at least within the Serbian urban context. Yet, for the purpose of this paper, there shall be used the term “informal” settlements because its connotation “brings more positive attitude towards the issue, when planners and other experts may learn a lot from this kind of development and even if it is not possible to completely stop informal settlements, there can just be stimulated their positive and discouraged the negative effects” (Žerjav, 2009:15).

Informal developments are not a recent phenomenon in Belgrade – more or less they have always been featuring its urbanization process. However, the proportions of informal buildings in Belgrade have breached “acceptable limits” after the early 1990s (marked by collapse of socialist housing system with the privatization of the public housing stock and the withdrawal of the state from further financing of the housing construction accompanied by mass immigration of refugees from the former Yugoslavia (BiH and Croatia) and internally displaced persons from Kosovo and Metohija. The limits of informal construction have always been marked by local circumstances, mentality and habits of the population (Žegarac, 1999). Among the key reasons why the population in Serbia lives in informal, suburban settlements of larger urban centers, are certainly a long-term absence of state housing support for low-income households and severe unaffordability of housing market. Since informal housing construction represents for many people an “exit housing strategy” (Hegedüs and Tosics, 1996), or a form to solve their housing issues themselves, which, in addition to lower land prices, provides them a possibility of saving through self-building and building in phases, self-built illegal housing emerges as the “unofficial social housing policy” and it has been tolerated as an inevitable side effect of the official housing system (Petrović, 2013:245).

The housing affordability problem in Serbia can be observed through available statistical data on the housing expenditures of households and the market prices of apartments in relation to the available households' incomes. According to the 2015 Household Budget Survey (HBS), households in Serbia spend a monthly average of 22.6% of their total disposable income on housing related expenditures (SORS, 2016). On the other hand, the results of the 2013 Survey on Income and Living Conditions (SILC) indicated that housing deprivation from the point of view of housing costs making a burden on the budget of households in Serbia was far more pronounced, i.e. that these expenditures amounted to about one third of disposable income (SORS, 2015:61). According to 2013 SILC, the share of individuals who consider that housing costs represent a significant burden on their family budget increases to over 80%, and among single parents to as much as 86% (SORS 2015:62). The latest economic analyses of the housing affordability from 2013 showed a modest share of wealthier households in the housing market in Serbia, whereas at the same time there was a significant group of potential beneficiaries of various forms of social housing (MCTI, 2015). According to these data, the ratio of median net annual household income to median apartment price in the given year was about 1:9 for the purchase in cash, or about 1:13 if the apartment was purchased with a bank loan, whereby among the larger urban settlements in Serbia, housing unaffordability was most pronounced in Belgrade (1: 9.7) (See: Table 1)

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Table 1. Housing affordability indicators in Serbia and Belgrade in 2013

	Serbia	Belgrade
Market rent, 55 m ² flat, EUR	200	300
Purchase price of a new 55 m ² flat, EUR	61,633	80,018
Monthly loan instalment, EUR	253	328
Average monthly net wage, EUR	388	478
Average monthly household income, EUR	559	689
Average annual household income, EUR	6,715	8,270
Price of a flat:annual household income	9	9.7
Market rent:household income	0,36	0.43
Loan instalment:household income	0.45	0.48

Source: Ministry of Construction, Transportation and Infrastructure of the Republic of Serbia, 2015 (Based on data from SORS, the National Bank of Serbia, and imovina.net)

With the onset of the global economic crisis, and especially after the year 2008, there has been a significant decline in the Serbian real estate market. The Statistical Office of the Republic of Serbia's data show that the number of completed housing units in Serbia in the period from 2008 to 2015 was almost halved (from 19,815 in 2008 to 10,306 in 2015). Despite the decrease in supply, the market prices of apartments recorded a continuous decline in the observed period, indicating a significant reduction in housing demand. According to the National Mortgage Insurance Corporation (NMIC), the average achieved price of residential real estate per m² in Serbia from 2009 to 2016 was marked by a clear decline, which was particularly pronounced in the Belgrade region.

Although the dominant share of dwellings in Serbia is privately owned (98.3%), housing needs of the total population are largely unmet (Petrović, 2013; Bajić, 2017), moreover, there is a problem of "poor homeowners". For example, in Serbia, the risk of poverty of the members of renting households is lower than the one of the owners - 18.2% versus 24.9%, which is in contrast to the EU data - 26.8% versus 13.7%, respectively (SORS, 2015:29). At the same time, the current social housing allocation model, which has been formally established since 2009, is rather residual in practice, given the negligible share of social housing in the total housing stock (less than 1%), very limited state funding and scope of construction, and the orientation of provision towards the most vulnerable beneficiaries (mostly Roma population and refugees).

796 Residential preferences, which presume giving a priority to certain type of housing by residents themselves, have been lately analyzed within Belgrade (sub)urban context (Petrić, Bajić, 2015; Petrić, 2017). Some aspirations towards residential environments are driven by the same motives regardless whether people are living in cities, towns, suburbs or rural areas, and those are: presence of job opportunities (especially for the younger population); a healthy economy; decent housing; good public services and attractive and safe environment (DETR, 2000). In Belgrade, the typical urban culture and strong preference for central city areas created high pressure on the traditional urban territories in the city core (Slaev et al., 2018). It is still very much the case that people who can exercise their residential choice would rather opt for the inner city living in Belgrade, where land is scarce but urban facilities and amenities are concentrated. On the other hand, socio-economic status or the lack of financial sources would drive people to look for a cheaper housing at the urban periphery (Petrić, 2017). In addition, some have to choose residential areas at the city periphery due to unemployment issues in the inner city and unaffordability of its life commodities (Krisjane, Berzins, 2012). The research which was conducted in 2014 showed that total score on residential preferences' dimensions in Belgrade's selected urban and suburban areas depends much more on perceived neighborhood attributes (overall facilities provision, and especially public transport system organization; feeling of safety; and happiness with contacts with neighbors) than on personal or housing background variables (duration of living in the present neighborhood; and type of occupancy).

Characteristics of informal settlements in Belgrade

Belgrade informal settlements are built on the city outskirts, forming a ring around the wider central city areas. Their development happens typically along the dominant traffic routes, e.g. by the main in and out transit corridors. This causes uncontrolled urban sprawl with spatial, economic and political outcomes in broader sense (Božić, Danilović Hristić, 2005; Danilović Hristić, 2014). Informal settlements of Belgrade are developed on the agricultural land, which was not planned for expansion of residential area hence the parcels/ plots with inherited agricultural land use are inadequate by their shape and encompass for housing. The plots are fragmented, i.e. subdivided and sold (keeping just the minimum access roads) and the process is not formally implemented through the Cadaster so that one plot has multiple objects with different owners. Also, some already formed villages on the outskirts of the city of Belgrade are annexed to the city due to mass building being initiated in them, usually without a plan.

The second form of the illegal/informal construction is when, despite the existing planning documents for urban settlements, their set of rules, parameters and standards have been completely neglected or breached especially in terms of vertical and horizontal regulation (number of floors and the position of constructions on the plot), in terms of Floor Area Ratio, densities, and often in terms of usurpation of public land for which the public land-use has not been implemented on time.

The third form of illegal/informal construction is linked to the older settlements, for example those which are closer to the central city zone, which have been neglected on a long run and could not be a part of the urban renewal and reconstruction process since the infrastructure corridors were planned in them, latter being abandoned here and relocated somewhere else, and in the meantime, the population needs in these settlements initiated informal construction and development of annex to the buildings without previously acquired building permit.

Common feature of all informal settlements in Belgrade is the lack of public facilities, primarily those of social and health care, e.g. kindergartens, schools, public health institutions, as well as their substandard equipment with infrastructure utilities and public transportation. Missing are also the facilities of commercial use, i.e. local shops.

The relief also influences different typologies of informal settlements, for example in parts of the city which are on the plain terrain (in the north and west) or in the terrains prone to slides (south and east parts of the city). Individual settlements which are developed on the flat terrains beset on traditional urban typology, with clear orthogonal grid of streets, so that they are much easier to be rehabilitated and it is easier to apply planning rules to them. On the other hand, the terrains with potential landslides, adverse slopes, flooded terrains without adequate defense from high water levels, terrains with high levels of groundwater, etc. have huge problems in the existing settlements, and their rehabilitation requires great financial investments.

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Other disadvantages refer to construction of informal settlements within the corridors of infrastructure (e.g. under a power line, near the power substation of larger capacity, overlaying the existing underground lines), and near the transportation corridors – motorways, regional roads, railways, or in the vicinity of the airports. In particular, it is necessary to point out that in Belgrade there is an issue of usurpation of the public land which is reserved by the urban plans for development of infrastructure and transport corridors. Many times, Belgrade authorities were forced to give up planning solutions for construction of public infrastructure for which there was funding already provided and had to invest in planning their relocation on other sites. Also, illegal construction of residential areas in Belgrade is a threat to potential extension of the airport's landing runway. Additionally, some informal settlements are located close to incompatible land uses with the housing, e.g. close to landfill sites, dumps, cemeteries, industrial and production zones, etc. For example, illegal construction approached a complex of the Nuclear Institute Vinča where there is temporarily stored radioactive waste.

The development of some informal settlements or of their parts may represent a threat to the areas of Belgrade which enjoy the status of protection of a cultural or natural heritage (e.g. important archaeological site in Vinča, a Neolith site in Banjica, protected area of the mountain Avala near Belgrade, etc.), likewise the zones of protection of the main water sources for public water supply.

Models for standardization, regulation and legalization of informal settlements in Belgrade

The attempts to form models which will help curbing the issue of urban sprawl of the informal settlements in Belgrade have been made through urban plans. Here it is referred to the *Plan of General Regulation of Belgrade* and several Detailed Regulation Plans. By the Plan of General Regulation of Belgrade, adopted in 2017 and encompassing the total area of 51,776 ha divided into nineteen specific units of Belgrade municipalities, it has been planned for present spontaneously formed blocks that make up the peripheral part of urban tissue to gradually transform through improvements and increasing implementation of the proper standards. This process is slow and it happens simultaneously at a number of locations in the city. Preparation of urban plans and establishment of sets of rules will allow

rehabilitation of present construction and definition of rules for new construction hence this model is compulsory for a majority of informal settlements unless they have already been elaborated through Detailed Regulation Plans. For a small number of villages in the flatlands section of the city, since they are based on inherited or extended urban matrix, it is made the possibility of "direct implementation" on the basis of the recommendations of the Plan of General Regulation of Belgrade.

The rules for rehabilitation (standardization and regulation) of urban blocks which were illegally formed are presented in Table 2. They are typologically classified according to the zones of single and multi-family housing, and deductions are based on extensive professional experience in preparing *Detailed Regulation Plans* for rehabilitation of informal settlements. As analyzed through this typology, so far the majority of informal settlements of the peripheral zones consist of single-family houses. On the other hand, multi-family housing is primarily concentrated inward, i.e. closer to the settlements which are developed according to the plans.

Table 2. Rules for construction for allowing rehabilitation of urban blocks which are not developed according to plans

Rules for construction for rehabilitation of urban blocks which are not developed according to plans	Single family housing zone	Multi-family housing zone
Floor Area Ratio (for angular constructions it can be increased for 15%)	30% to 50%	up to 60%
Lot coverage (for angular constructions it can be increased for 15%)	up to 1.2	up to 2.8
Maximum height of constructions/number of floors *Gf - ground floor *1, 2, 3, 4, - number of floors *At - attic	height range up to 9 m, Gf + 1 + At	height range up to 18 m, Gf + 4 + At
Conditions for the green and open spaces	<ul style="list-style-type: none"> • minimum 50% of the plot is in green/open spaces • minimum percentage of green areas in direct contact with the soil (without underground constructions/their parts) is 20% 	<ul style="list-style-type: none"> • minimum 40% of the plot is in green/open spaces • minimum percentage of green areas in direct contact with the soil (without underground constructions/their parts) is 10%
Parking	Parking solutions have to be provided on the plot, either through construction of garage or by making the open parking space on the plot, according to standards	
Minimum level of infrastructure	<ul style="list-style-type: none"> • Construction must have connection to the water and sewerage network, and to electricity or other alternative energy source; • Until the realization of urban wastewater evacuation system it is allowed to use individual or common septic tanks, in accordance with the technical norms prescribed for this type of facilities. 	

Ever since the 1990s, for the purposes of legalization and rehabilitation of informal settlements, there was endorsed decision on preparation of Detailed Regulation Plans (formerly Regulatory Plans). This planning process intensified in the past 10 years so presently there are not so many informal settlements of Belgrade which have not been covered by relevant planning documentation. This process has been demanding; it placed a burden on the city budget likewise it was exhausting for urban planners. For example, encompass of some of the adopted plans for bigger informal settlements within the inner urban zone of Belgrade was more than 4,000 ha, or 11.5% of the city territory. Considering the average costs for development of a plan, which are approximately 4,000 EUR/ha (including VAT), it can be calculated that the city of Belgrade budget had to provide some 16 million EUR for developing just the planning documentation within the specified period of 20 years. Average


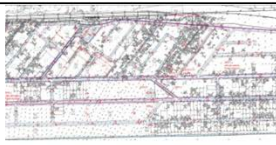







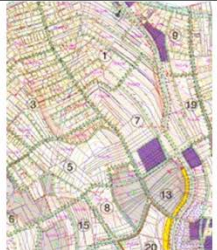


duration for development of a plan (altogether with the procedure of professional control of the plan, public insight process and plan's adoption) lasts between 1.5 to 2 years.

The greatest challenge in planning for remediation of informal settlements is the issue of public areas and public land uses. Even though residents of these settlements notice the lack of public land uses and they demand such equipment of their settlements, once their private interest could be even to a least bit endangered, they object to planned regulation of streets, which is at the expense of their plots (although planners strictly take care that the demolition of the existing illegal buildings comes down to the absolute minimum). Also, in case that residents have to have a part of their property being subject to expropriation in order to endorse planning decisions that promote public purposes, e.g. kindergartens, schools, ambulances, etc. in their settlements, during the process of public insight into the plan they tend to object such planning decisions (Danilović Hristić, Stefanović, 2013).

For the purposes of locating facilities of public services, urban planners first check whether a plot of land is owned by the State or by the local government, and if there such "soft" location exists, they opt for it. The second option would be to choose land which is "empty", i.e. one which is not yet "threatened or attacked" by illegal construction. The third and the most expensive one is choosing a location on disadvantageous terrain, which anyway has to be rehabilitated and encompassed by the public works, for example at a potential landslide, close to the watercourses, etc.

Table 3 presents an overview of Detailed Regulation Plans endorsed for selected cases of informal settlements of Belgrade, as structured according to the terrain morphology.

Table 3. The examples of informal settlements of Belgrade and adopted Detailed Regulation Plans for them

Terrain morphology	Examples of informal settlements and planning documents for them		
Lowland:	<u>Plavi horizonti</u>	<u>Altina</u>	<u>Krnjača</u>
	 	 	 
Hillsides:	<u>Jezevac</u>	<u>Padina</u>	<u>Mali mokri lug</u>
	 	 	 

Conclusion

The promotion of compact urban living in contrast to urban sprawl is the way that is knowingly supported by urban policies all over the world. In some countries people's preferences and housing affordability induce additional sprawl. In the South and South Eastern European countries, the occurrence of illegal (informal) settlements at the periphery of cities is a well known phenomenon that is triggered by population growth that needs to be accommodated through development of new residential blocks and settlements (not seldomly through individual initiative since the state is not able to provide affordable solutions), as well as by development of new infrastructure systems.

The analyses of the informal settlements of Belgrade show that the major problem to be resolved is how to enable construction of roads according to regulations for positioning all needed infrastructure lines and how to accommodate these settlements with needed services of a social standard. This represents a problem because houses are often built so close one to another, i.e. without regard of the regulation lines. The majority of objects in these settlements are free standing family houses, with elevation of floors from GF+1 to Gf+4, with high densities. On the positive side, the levels of soundness and standard of most of the objects here is high – they are built of durable construction materials, and some buildings are quite luxurious (with swimming pools, etc.).

With emphasis on the issue of standardization of Belgrade informal settlements' development, in this paper there were presented models for single and multi-family housing zones. These models, which are based on contextual empirical knowledge, consisted of rules for construction that promoted rehabilitation of urban blocks which were not developed according to the plans. Similarly, by overviewing the potentials for recovery of informal settlements in Belgrade there could be noticed the positive impact of Detailed Regulation Plans which help remediation of informal settlements through full recognition of the necessity to safeguard public land uses whilst minimizing the impact on interests of the private owners who already built without permits.

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